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## REVIEWS AND NOTICES.

## LONGSTAFF'S STUDIES IN STATISTICS.

*Studies in Statistics. Social, Political, and Medical.* By George Blundell Longstaff, M.A., M.B., etc. London: Edward Stanford. 1891. 8vo. Pp. 455. Maps and diagrams.

In this valuable volume Dr. Longstaff has compiled many of the statistical tables of the Reports of the Registrar Generals, which, to use his own language, "form a vast reservoir, into which a ceaseless stream of facts has been flowing for more than half a century. To disturb the dust upon these shelves; to fish out facts; to group, arrange, compare, and ponder over them has long been my hobby."

The principal sources employed in the compilation of the work are the Annual Reports, Decennial Supplements, Quarterly Returns, Weekly Returns, and Annual Summaries of the Registrar General's Office of England, The United States Census of 1880, The Almanack de Gotha, The Census of France of 1881, The Statesman's Year-Book, The Report of the Government Statist of Victoria, and the Supplementary Reports of the Medical Officer of the Local Government Board of England.

The first three chapters are elementary, one being devoted to the general subject of Death Rates, in which the use of the term "rate" as employed by the vital statistician is very intelligently explained. The third chapter treats of the Birth, Death, and Marriage Rates of England and Wales for a period of fifty years.

A satisfactory reply is given to the statement of certain social philosophers that epidemics do not materially affect the general death rate. Dr. Longstaff says in reply: "I do not deny that there is *some* truth in these assertions, but any benefit to the average health standard of the community that may result from an epidemic removing weakly individuals is completely overwhelmed by the permanent injury that in too many cases results to the constitutions of those who are attacked by the epidemic, and indeed escape from death, but

recover imperfectly, and have to go through life weakened or maimed. We have, in short, to deal not only with killed but with wounded."

Several chapters are devoted to the growth of new nations, the United States taking a prominent place. In this chapter the author shows the remarkable growth of the population, at the same time lamenting the fact that we have no general system of registration in by far the greater number of the states. He states that the immigration statistics of the United States are overestimated and presents the following figures in support of his position.

EMIGRATION TO THE UNITED STATES. FIVE YEARS, 1882-86.

From.	U. S. Figures.	British and German Figures.	Excess of U. S. Figures. Per Cent.
United Kingdom.....	688,865	572,003	20.4
Germany.....	833,938	666,421	25.1

His estimate of the natural increase (by excess of births only) for the United States is about two per cent annually. The Indian, the Chinese, and the Negro questions are briefly but intelligently discussed, as are also the composition of the different nationalities represented in the population of the United States. The remaining new countries to which special chapters are devoted are Canada, South America, and Australia. Other chapters follow upon the growth of cities and upon the food supply.

In the chapter entitled "Suggestions for the Census" the following questions are discussed: —

1. How frequently should the census be taken? To this, after a thorough discussion of the question, he replies: "The Census Act of 1890 should be so framed as to establish the census upon a permanent *quinquennial* basis."

2. What questions should be asked in the schedule? The author suggests several additional points to those already contained in the schedules. The inquiry as to *sickness* does not appear to present such obstacles to the author as were frequently met in the United States Census of 1890.

3. How are the results to be tabulated? In reply to this question the author quotes the valuable experience of M. Körösi, of Buda-Pesth, and also makes several distinct suggestions with reference to future work.

The concluding chapters, which form one-half of the volume, are devoted to the discussion of the following medical topics: The decline in the English death rate; Causation of summer diarrhœa; Statistical indications of a relationship between scarlatina, erysipelas, puerperal fever, and certain other diseases; Distribution of diphtheria, phthisis, pneumonia, and bronchitis, are they epidemic diseases? Communicability of phthisis; Continued fevers in London; and Hydrophobia.

Among the prominent causes to which the decline in the death rate may be attributed, Dr. Longstaff enumerates a diminished number of deaths from fever and phthisis, and to a somewhat less degree from scarlet fever, diarrhœal diseases, small-pox, diphtheria, and measles. There has also been a marked diminution of the indefinite class entitled "all other causes." Coincidentally with this decline in certain diseases there has also been an increase in the mortality from certain other diseases, notably diseases of the heart, lungs, kidneys, and from cancers. The increase is less than the decrease.

As an inference he states: "Since the falling causes of death *can* only fall to zero, but the rising causes *may* rise indefinitely, the present changes may conceivably in the course of time lead to a rise in the general death rate."

The tendency for useful working life appears to be increased, but for old age to be slowly shortened. In the chapter on summer diarrhœa the author discusses the three questions: (1) Where does it kill? (2) When does it kill? (3) Whom does it kill?

To the first inquiry he concludes that the mortality is mainly in towns (as opposed to country districts), but with some remarkable exceptions. To the second, that deaths become more numerous about June 1 (three weeks after the temperature of the air rises above 50° F.), and that a fortnight after the temperature has risen to 60° F. they begin to exceed the mean. The greatest number of deaths from this cause occurs in the first week in August,\* after which the numbers fall as they rose.

To the third question he replies that this disease kills persons of every age, but young infants in by far the largest proportions.

In the chapter on the distribution of diphtheria it is shown that the mortality from this disease in England is greatest in the rural districts. Assuming that of the dense districts as 1000, the figures are as follows:

\*In Massachusetts last week of July. Mean of six years observations.

Mortality from diphtheria in dense districts, 1000					
"	"	"	medium	"	1178
"	"	"	sparse	"	1507

To this he adds: "If, therefore, it were worth while to undertake the immense labor of correcting all my calculations for differences of *age and sex constitution*, the striking contrast that I have endeavored to bring out between the liability of rural and urban populations to fatal diphtheria would be *still more marked*."

The question of the probability of the accidental and fatal incidence of phthisis upon both husband and wife is treated from a purely mathematical standpoint, the problem being to ascertain from the materials at hand how frequently such coincidences might be expected to occur as a *pure matter of chance* on the hypothesis that phthisis is *not* a communicable disease.

He concludes that, to show any substantial argument for the existence of infection, it would require a much larger collection of cases than has yet been published. The chapter on hydrophobia will be of special interest to American readers in the present epidemic years of the disease. Hydrophobia destroyed 944 persons in England and Wales in the period 1847-85. It was five times as fatal in the latter half of this period as it was in the first half. London did not suffer so severely as other parts of the Kingdom as the police order of 1885 checked the spread of the disease. It is most fatal between the ages of 5 and 15, and many more males die at all ages than females. Its geographical distribution is peculiar, Lancashire suffering most, Cheshire and Yorkshire next.

The author concludes this most excellent volume as follows: "My hope throughout has been that increased knowledge of facts, alike in matters political and matters medical, may tend to make legislative and administrative efforts more reasonable, and less empirical. Sure progress is more likely to be attained by the diligent and patient study of details than by the more showy and more attractive method of *à priori* speculation, which is but too apt to lead to rash and possibly disastrous experiments."

S. W. ABBOTT.